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WHAT IS CLAIMED IS:

- 1. An isolated nucleic acid molecule comprising a cDNA sequence encoding a mammalian CaMK-X1 protein that will hybridize under stringent conditions of 50°C or higher in the presence of 0.1XSSC to the sequence set forth in SEQ ID NO:1.
- 2. An isolated nucleic acid according to Claim 1, wherein said cDNA sequence is of human origin.
- 3. An isolated nucleic acid molecule according to Claim 2, wherein said mammalian CaMK-X1 protein comprises the sequence set forth in SEQ ID NO:2.
- 4. An isolated nucleic acid molecule according to Claim 3, wherein said nucleic acid comprises the nucleotide sequence of SEQ ID NO:1.
- 5. An isolated nucleic acid molecule consisting essentially of a sequence of at least 500 contiguous nucleotides of the sequence set forth in SEQ ID NO:1.
 - 6. The nucleic acid of Claim 1, further comprising a vector sequence.
- 7. The nucleic acid of Claim 6, wherein said vector comprises a transcription cassette operably linked to said CaMK-X1 cDNA sequence.
 - 8. The nucleic acid of Claim 7, wherein said vector is a plasmid.
 - 9. The nucleic acid of Claim 7, wherein said vector is a retrovirus.
 - 10. The nucleic acid of Claim 7, wherein said vector is an adenovirus.
- 11. A purified polypeptide composition comprising at least 50 weight % of the protein present as a CaMK-X1 protein or a fragment thereof.
- 12. A polypeptide according to Claim 11, wherein said polypeptide comprises the amino acid sequence of \$EQ ID NO:2.

- 13. A monoclonal antibody binding specifically to a CaMK-X1 protein.
- 14. A non-human transgenic animal model for CaMK-X1 gene function wherein said transgenic animal comprises an introduced alteration in an CaMK-X1 gene.
- 15. A method of screening for biologically active agents that modulate CaMK-X1 function, the method comprising combining a candidate biologically active agent with any one of:
 - (a) a mammalian CaMK-X\ \polypeptide;
- (b) a cell comprising a nucleic acid encoding a mammalian CaMK-X1 polypeptide; or
- (c) a non-human transgenic animal model for CaMK-X1 gene function comprising one of: (i) a knockout of an CaMK-X1 gene; (ii) an exogenous and stably transmitted mammalian CaMK-X1 gene sequence; and

determining the effect of said agent on CaMK-X1 function.